

By Tony Hoffman
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Comets

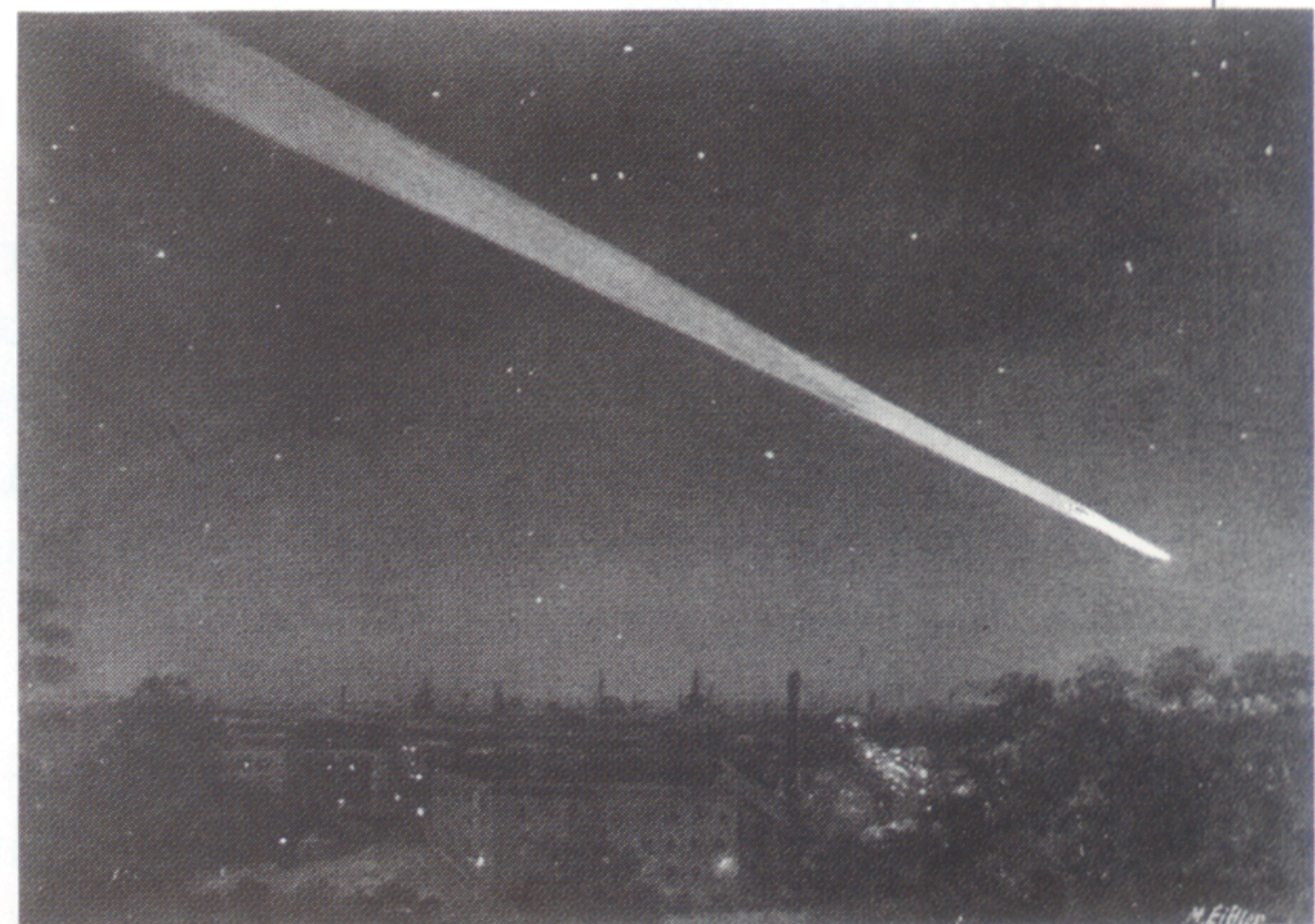
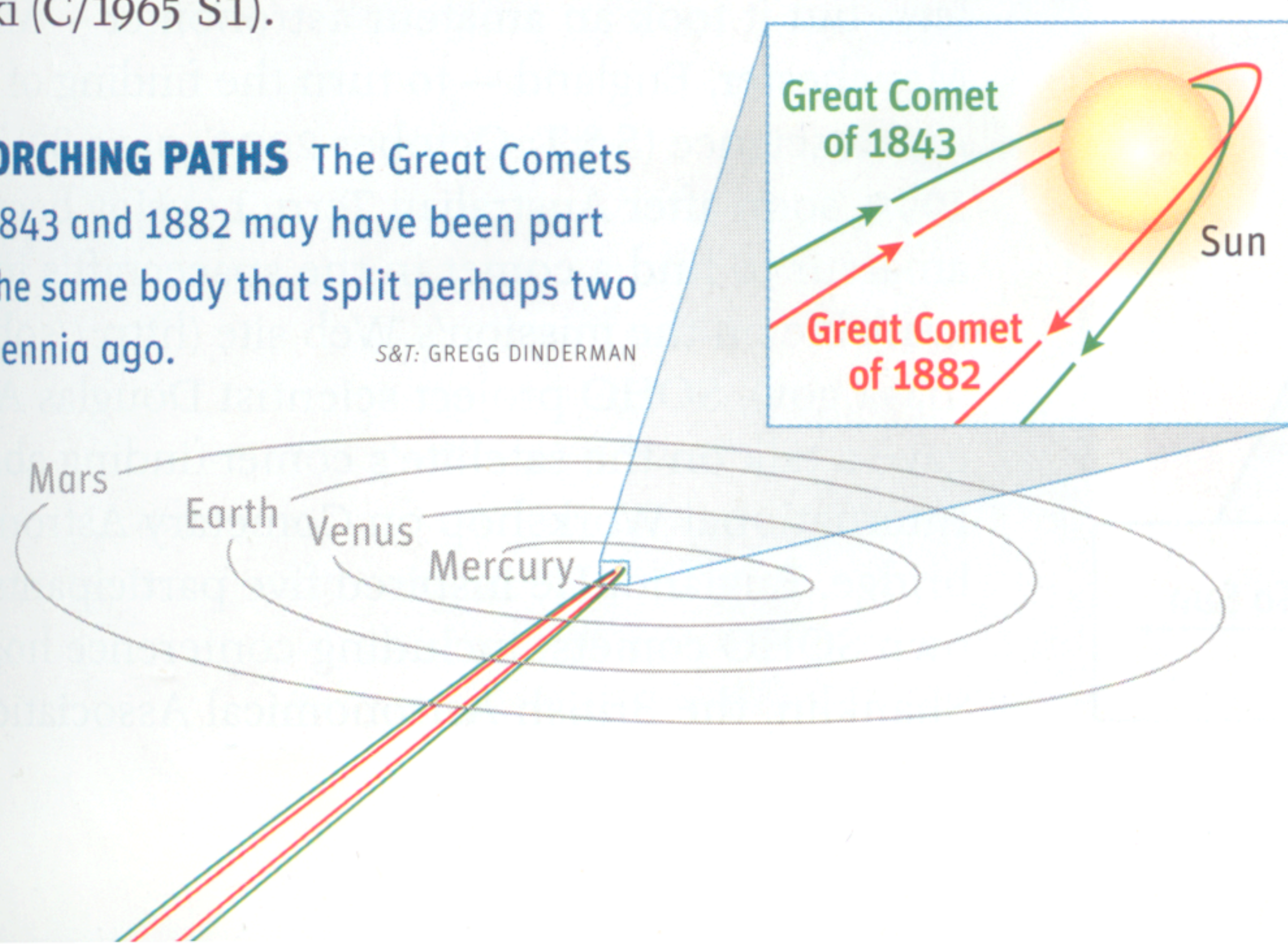
FOR SEVERAL HUNDRED YEARS, astronomers have known that some comets pass extremely close to the Sun. Historically, these visitors to the inner solar system provided a dazzling sight — brilliant, with long, narrow tails visible even in twilight. A few have been easily seen in full daylight. Some didn't survive, as gravitational stress and enormous heat shattered them as they ventured too near our star.

In the late 19th century, German astronomer Heinrich Kreutz studied a subset of these comets and concluded that at least four, and possibly as many as eight — including the Great Comets of 1843 and 1882 — travel in similar orbits that bring them within a mere solar radius (696,000 kilometers, or 433,000 miles) of the Sun's photosphere at perihelion. Kreutz believed that these "sungrazing" comets, which form the group that now bears his name, were once part of a larger body that split apart at some earlier perihelion passage, as the 1882 comet (C/1882 R1) was itself observed to do.

Kreutz drew attention to the possibility that the 1882 comet — which when closest to the Sun shone brighter than magnitude -15 with a 3° tail! — was a return of another daylight comet seen in AD 1106. In the mid-20th century, astronomers found four more Kreutz sungrazers, including 1965's spectacular Ikeya-Seki (C/1965 S1).

SCORCHING PATHS The Great Comets of 1843 and 1882 may have been part of the same body that split perhaps two millennia ago.

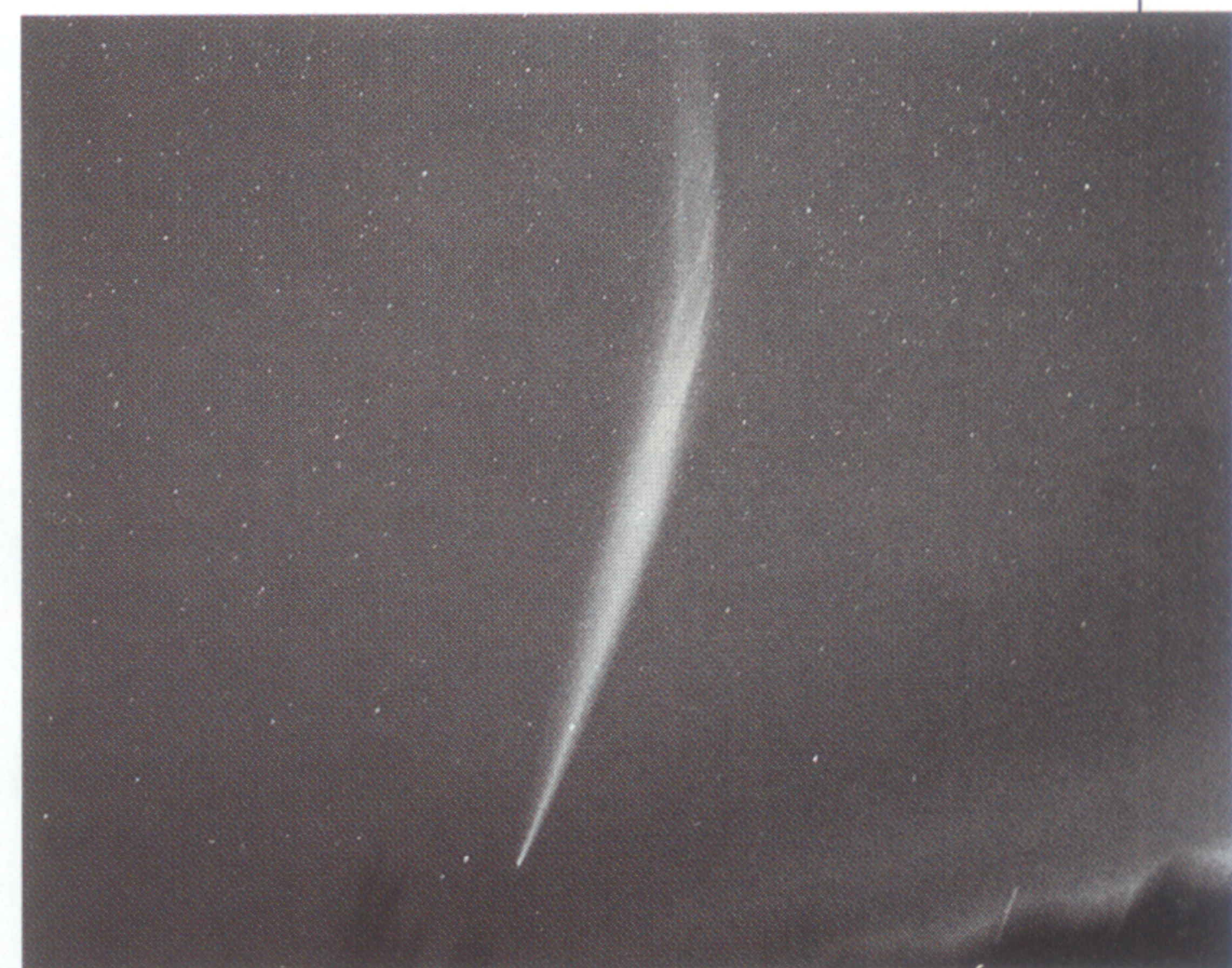
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DAYLIGHT SPECTACLE The Great Comet of 1843, also called the Great March Comet, was seen by many observers in broad daylight within a few days after it grazed the Sun on February 27th. This engraving depicts the comet above Paris on March 19th.



A COMET TO REMEMBER Another Great Comet stunned skygazers late in 1882. It was visible in the morning sky before and well after its September 17th perihelion. In October of that year, astronomers watched as part of the nucleus broke off. This early astrophotograph was taken by David Gill on November 14th.



MORNING GLORY The most spectacular sungrazing comet of modern times was Ikeya-Seki, which graced the predawn sky in late September and October 1965. Its orbit is very similar to that of the Great Comet of 1882. Both are members of the same family of comets first theorized by 19th-century astronomer Heinrich Kreutz.